

COPY

US EPA RECORD CENTER REGION 5



591085

1

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF INDIANA  
SOUTH BEND DIVISION

Volume: 1  
Pages: 98  
Exhibits: 7

UNITED STATES OF AMERICA,  
Plaintiff

vs.

Docket No.  
590-00056

CONSOLIDATED RAIL CORPORATION,  
a/k/a CONRAIL,  
Defendant and  
Third Party Plaintiff

vs.

PENN CENTRAL CORPORATION, et al,  
Third Party Defendants.

DEPOSITION of DAVID B. URBAN, a  
witness called by and on behalf of the Defendant,  
taken pursuant to the Federal Rules of Civil  
Procedure, before Cynthia F. Stutz, Court  
Reporter and Notary Public in and for the  
Commonwealth of Massachusetts, at the offices of  
Bingham, Dana & Gould, 150 Federal Street,  
Boston, Massachusetts, on Monday, September 27,  
1993, commencing at 1:08 o'clock p.m.

APPEARANCES:

U.S. Environmental Protection Agency (By  
STEVEN C. MASON, ESQ.), Office of  
Regional Counsel, CS-3T, 77 West Jackson  
Boulevard, Chicago, Illinois, appearing  
on behalf of the Plaintiff.



Robert H. Lange Co., Inc.  
Boston, Massachusetts  
(617) 523-1874

## A P P E A R A N C E S    C O N T I N U E D :

Bingham, Dana & Gould (By PAUL J. LAMBERT,  
ESQ.), 2550 M Street, N.W., Washington,  
D.C., appearing on behalf of the  
Defendant, Conrail.

Goodwin, Procter & Hoar (By CHRISTOPHER P.  
DAVIS, ESQ.), Exchange Place, Boston,  
Massachusetts, appearing on behalf of  
the Third Party Defendant, Gemeinhardt  
Co.

Frost & Jacobs (By PIERCE E. CUNNINGHAM,  
ESQ.), 2500 Central Trust Center, 201  
East Fifty Street, Cincinnati, Ohio,  
appearing on behalf of the Third Party  
Defendant, Penn Central Corp.



## I N D E X

---

WITNESS:	DIRECT	CROSS	REDIRECT	RECROSS
----------	--------	-------	----------	---------

---

David Urban	5			
-------------	---	--	--	--

---

EXHIBITS:	DESCRIPTION	PAGE
-----------	-------------	------

---

1	Notice	5
2	Notice	5
3	Summary Report dated 1/92	44
4	Design Report dated 6/91	56
5	Final Report dated 10/88	64
6	Remedial Action Evaluation and Recommendation dated 12/88	92
7	Letter dated 12/24/91	93



## P R O C E E D I N G S

MR. DAVIS: I'm Christopher Davis.

I represent third party defendant Gemeinhardt Company. Gemeinhardt has designated David Urban, who works for the firm of ENSR Consulting and Engineering to testify in response to both of the deposition notices of Conrail dated September 15, 1993. As to the first notice, Mr. Urban is knowledgeable about some of the matters, including the work of ENSR on behalf of Gemeinhardt at the site and the reports they've issued. As to the second notice, we're designating Mr. Urban on the subject of some of Gemeinhardt's response actions taken pursuant to the E.P.A. orders and the other witness we're producing tomorrow will also deal with both of those subjects, but different aspects of them.

MR. CUNNINGHAM: Chris, could we have the spelling of David's last name?

THE WITNESS: U-r-b-a-n.

MR. CUNNINGHAM: Thank you.

MR. LAMBERT: Let me ask that the two notices of deposition be marked Urban Exhibits 1 and 2.



1       \*0\*                   (Urban Exhibit Nos. 1 & 2,  
2                               marked for identification.)

3                               \*           \*           \*           \*

4       Whereupon:

5                               DAVID B. URBAN,  
6       having been first duly sworn, was examined and  
7       testified as follows:

8       \*0\*                   DIRECT EXAMINATION

9                   BY MR. LAMBERT:

10          Q.     Mr. Urban, where are you employed,  
11       please?

12          A.     ENSR Consulting and Engineering.

13          Q.     Where are you based?

14          A.     In Acton, Massachusetts.

15          Q.     ENSR was formerly known as ERT?

16          A.     That's correct.

17          Q.     When did you first become involved with  
18       the Gemeinhardt plant in Elkhart, Indiana?

19          A.     My involvement began in 1989.

20          Q.     Are you still involved today?

21          A.     Yes, I am.

22          Q.     What is the role that you play?

23          A.     I am the project manager for ENSR's  
24       activities.



1 Q. Were you project manager in 1989, as  
2 well?

3 A. Yes, I was.

4 Q. Did you have any connection with the  
5 Gemeinhardt facility prior to 1989?

6 A. No, I did not.

7 Q. What's your profession?

8 A. I am a chemical engineer by training.  
9 Been working in environmental engineering for  
10 approximately eighteen years.

11 Q. Where are you from, your degrees?

12 A. I have a B.S. in chemical engineering  
13 from the University of Connecticut, received in  
14 1975.

15 Q. Any other degrees?

16 A. No.

17 Q. My understanding is that ENSR or ERT  
18 before them had been, have been involved at the  
19 Gemeinhardt site since about 1984, perhaps even  
20 earlier than that. Do you know when ENSR or ERT  
21 first became involved in the site?

22 A. I do not know exactly, but 1984 sounds  
23 approximately correct.

24 MR. DAVIS: Paul, I think you may



1 find it's later. My recollection, although it's  
2 not my deposition, is that it was 1985 since the  
3 matter first arose, Christmas of 1984.

4 BY MR. LAMBERT:

5 Q. Who were your predecessors as project  
6 manager, do you know?

7 A. There were other people involved. I  
8 took over for Carol Bois, B-o-i-s and other  
9 people that had been in management roles, Ruth  
10 Krumhansel. K-r-u-m-h-a-n-s-e-l I believe is the  
11 spelling.

12 Q. Could you say it again, please?

13 A. K-r-u-m-h-a-n-s-e-l and Jeff Lawson.

14 Q. Could you spell that, please?

15 A. L-a-w-s-o-n.

16 Q. Who was the project manager that you  
17 succeeded?

18 A. Carol Bois.

19 Q. Do you know how long she was project  
20 manager?

21 A. No, I do not know exactly.

22 Q. Can you give me an estimate?

23 A. I would guess probably a year and a  
24 half, maybe two years.



1 Q. Prior to the beginning of 1988?

2 A. I took over in mid 1989, so I don't know  
3 exactly when she started working at ENSR, but I  
4 guess my answer is I do not know exactly when.

5 Q. Are you familiar with the work that ENSR  
6 did prior to the time that you took over as  
7 project manager?

8 A. I'm familiar with the work from the  
9 results that were published in the reports that  
10 were issued and also with discussions with some  
11 of the people that worked on the project.

12 Q. Mr. Urban, I'm sorry, I was distracted.  
13 You said you had reviewed the reports that were  
14 written with respect to the facility?

15 A. That's correct.

16 Q. Have you reviewed them recently?

17 A. Yes, I did.

18 Q. Have you spoken with anyone other than  
19 Mr. Davis in preparation for the deposition?

20 A. Yes, I've spoken to some people that  
21 were involved with the project.

22 Q. Who were they?

23 A. Michael Moore of ENSR, Daniel Akin of  
24 EIS. I don't recall anyone else.



1 Q. Did you speak with Carol Bois?

2 A. No, I did not.

3 Q. You mentioned a woman named Ruth  
4 Krumhansel?

5 A. That is correct.

6 Q. What was her job?

7 A. I do not know exactly. I, from past  
8 correspondence, I would gather that she was the  
9 project manager because of her invoice letters,  
10 her monthly reports. She signed those. She is  
11 no longer with ENSR.

12 Q. Who was Mr. Lawson?

13 A. He also -- I do not know Mr. Lawson.  
14 He was a former ERT employee who I have not met  
15 and have not talked to. He, again, he signed  
16 certain letters and I, from that information and  
17 I heard his name mentioned also with some of the  
18 activities that went on. He had some level of  
19 responsibility for the project.

20 Q. Are you ENSR's liaison to the client?

21 A. That's correct.

22 Q. Who is the client?

23 A. The person I'm working, with his name is  
24 Joseph Horowitz, H-o-r-o-w-i-t-z Z.



1 Q. Where is he?

2 A. He works for CBS, Inc.

3 Q. Is there a project hydrogeologist today?

4 A. There is no one that is designated as  
5 the project hydrogeologist. The person who has  
6 been, who has been responsible for the  
7 hydrogeology for the most part at ENSR was  
8 Michael Moore.

9 Q. I couldn't hear his last name.

10 A. Michael Moore, M-o-o-r-e.

11 Q. Do you know how long he's had that  
12 responsibility?

13 A. I do not know exactly, but he, I believe  
14 he was involved near the beginning of ENSR's  
15 involvement, if not at the beginning, so possibly  
16 since 1985.

17 Q. Is there someone at ENSR who has  
18 responsibility now for work relating to modeling?

19 A. There has not been any one person  
20 designated for the modeling work. It -- I  
21 guess that's my answer.

22 Q. Is there one particular person who's  
23 primarily responsible for them?

24 A. There have been a few people that have



1 worked on the modeling. A person named Mark  
2 Schaefer, S-c-h-a-e-f-e-r, and a person named  
3 David Schafer, S-c-h-a-f-e-r and a woman named  
4 Monique Villars, V-i-l-l-a-r-s have all been  
5 involved with the modeling.

6 Q. Have they all been involved since you  
7 became involved with the site?

8 A. Mark Schaefer was involved before I  
9 became involved and the other two have been  
10 involved since I became involved.

11 Q. Is there someone at ENSR who interfaces  
12 with the U.S. EPA or with the IDEM?

13 A. Yes.

14 Q. Who is that?

15 A. That is me.

16 Q. Since you have been involved with this  
17 project have you, on behalf of ENSR, submitted  
18 various reports to either or both of EPA and/or  
19 IDEM?

20 A. Yes, I have.

21 Q. Have they been submitted pursuant to  
22 some order or other requirement?

23 A. They were submitted pursuant to two  
24 consent orders that were issued for the site.



1 Q. Were reports provided by ENSR to EPA and  
2 IDEM prior to your being appointed project  
3 manager?

4 A. Yes.

5 Q. Were they also submitted pursuant to the  
6 two orders that you mentioned?

7 A. Yes.

8 Q. As far as you're aware, have all of the  
9 reports that have been submitted to EPA and IDEM  
10 fairly reflected ENSR's views with respect to the  
11 matters that are discussed in them?

12 A. Yes, they have.

13 Q. And has the data that has been contained  
14 in the reports been accurate except where  
15 questions with respect to the data are contained  
16 in the report or otherwise noted?

17 A. I have no reason to believe otherwise.

18 Q. Is it correct that you intended that the  
19 reports that were furnished to IDEM and EPA will  
20 be relied upon those two agencies in connection  
21 with their supervision with the performance under  
22 the orders?

23 MR. DAVIS: Objection, leading.

24 Also definition of the term reliance.



1 BY MR. LAMBERT:

2 Q. Go ahead.

3 A. Could you repeat the question, please?

4 Q. Yeah. When you and your colleagues  
5 submitted reports to EPA and IDEM with respect to  
6 the project, was it your understanding that EPA  
7 and IDEM would rely upon the contents of the  
8 report in connection with their supervision of  
9 Gemeinhardt's or CBS's performance under the  
10 orders?

11 MR. DAVIS: Restate the same  
12 objection.

13 THE WITNESS: I, I, I haven't  
14 thought about it. I would guess that EPA and  
15 IDEM would use that information to evaluate the  
16 site.

17 BY MR. LAMBERT:

18 Q. One of the purposes of the reports was  
19 to inform EPA of ENSR's views with respect to the  
20 site, is that correct?

21 MR. DAVIS: Objection, leading.  
22 You may answer.

23 THE WITNESS: The intent is to  
24 present ENSR's data and evaluation of that data.



1 BY MR. LAMBERT:

2 Q. When you first became project manager  
3 were you aware that the rail yard that's north of  
4 the Gemeinhardt facility was either on the  
5 National Priorities List or a candidate for  
6 inclusion on the National Priorities List?

7 A. Yes.

8 Q. How did you become aware of that?

9 A. It is stated in some of the reports that  
10 the rail yard is north of the site. That was one  
11 place where I learned. And in other  
12 conversations with people involved with this  
13 site, it was brought to my attention.

14 Q. When you say that there was a reference  
15 to the rail yard in reports, are you referring to  
16 prior ENSR reports?

17 A. Yes, prior ENSR reports.

18 Q. When you have submitted reports to U.S.  
19 EPA and/or IDEM has it been ENSR's practice to  
20 submit them first to its client for its review?

21 A. Yes.

22 Q. To your knowledge has ENSR ever  
23 submitted a report that was not first reviewed by  
24 the client?



1 A. Yes.

2 Q. Can you tell me which report that was?

3 A. The reports I would be referring to  
4 would be the monthly reports that were issued on  
5 a monthly basis of month that I was project  
6 manager and previous to that.

7 Q. Apart from the monthly reports, are  
8 there any reports that you're aware of that were  
9 not first shown to the client?

10 A. No.

11 Q. Were there any reports that were  
12 submitted to EPA or IDEM other than monthly  
13 reports that had not been approved by the client  
14 prior to submission?

15 A. No.

16 Q. Have you had any involvement in  
17 connection with a search for or investigation of  
18 other potential sources of contamination in the  
19 Gemeinhardt area other than Gemeinhardt itself?

20 A. I'm sorry, can you repeat the question?

21 Q. Sure. Have you had any involvement  
22 personally in connection with the investigation  
23 or search for other sources of contamination in  
24 the Gemeinhardt area other than the facility



1       itself?

2           A.     Yes.

3           Q.     Can you tell me what you have been  
4       involved in?

5           A.     We looked for a site for the treatment  
6       facility and we did some -- Actually, we sampled  
7       some existing wells and analyzed for pollutants  
8       to understand the nature of the ground water in  
9       the area where we were going to build the  
10      treatment plant.

11          Q.     Was that work done with the objective of  
12      finding other sources of contamination or simply  
13      to be aware of them prior to the time that you  
14      installed the treatment facility?

15          A.     As I recall, it was to be aware of them.

16          Q.     Since you have been project manager has  
17      ENSR identified any additional sources of  
18      contamination in the Gemeinhardt area?

19          A.     Since I've been project manager the  
20      analyses that we've done have been within the  
21      plume area other within, where the treatment  
22      plant was located and we have not, to my  
23      knowledge, identified anything that was  
24      specifically other than the Gemeinhardt



1 contamination.

2 Q. There is reference in several of the  
3 ENSR reports to the likely existence of a source  
4 of TCA contamination where Emerson Musical  
5 Instruments was once located?

6 A. Yes.

7 Q. Are you familiar with those references?

8 A. Yes, I am.

9 Q. Apart from Emerson Musical Instruments,  
10 assuming for the moment that it is a source of  
11 contamination, has ENSR identified by specific  
12 location any other sources of contamination  
13 within the Gemeinhardt area?

14 A. Yes.

15 Q. Can you tell me what they are, please?

16 A. I do not know the specific source, but  
17 the results of the investigation, from the  
18 results of the investigation maps were drawn  
19 showing contamination in the area and some of the  
20 contamination was outside of the so-called  
21 Gemeinhardt plume.

22 Q. Were any of those areas of contamination  
23 ever linked to specific facilities or to specific  
24 causes other than the one that was linked to



1 Emerson?

2 A. I do not recall.

3 Q. Do you recall that various of the  
4 reports do make reference to Emerson Music as a  
5 potential additional source?

6 A. Yes, I do.

7 Q. Can you tell us what evidence ENSR  
8 collected tending to show that there was a source  
9 of contamination at that facility?

10 A. Yes. At the monitoring wells near the  
11 Emerson property, there was one monitoring well  
12 in the up gradient side of the building and  
13 monitoring wells down gradient and these  
14 monitoring wells showed elevated levels of the  
15 chlorinated compounds of concern, TCE and TCA.

16 Q. Was TCE present as well as TCA?

17 A. To my knowledge, yes.

18 Q. Apart from that data, was any other data  
19 collected or reviewed by ENSR in connection with  
20 its determination that Emerson represented an  
21 additional source?

22 A. I guess if you can clarify what you mean  
23 by any other data.

24 Q. Besides the data from the two monitoring



1 wells that you mentioned.

2 MR. DAVIS: This is to his  
3 knowledge, since he was involved?

4 MR. LAMBERT: Well, I don't know  
5 what he -- I presume he's testifying on behalf  
6 of whatever information or testifying with  
7 respect to whatever information ENSR collected at  
8 any point. He's the only ENSR person that's  
9 being produced, I take it, so I presume he's  
10 going to tell us what ENSR as an organization  
11 knows about the situation.

12 MR. DAVIS: Yeah, to the best of  
13 his knowledge.

14 THE WITNESS: To the best of my  
15 knowledge, the Emerson facility was also involved  
16 with metal manufacturing, I believe it was  
17 musical instruments also and the processes were  
18 similar. I believe they were similar and  
19 therefore, the potential for similar types of  
20 discharge of materials was there.

21 BY MR. LAMBERT:

22 Q. How long was the Emerson plant in  
23 operation?

24 A. That I do not know.



1 Q. Do you have, did you have any  
2 information that Emerson actually used either TCE  
3 or TCA?

4 A. I do not have that information.

5 MR. DAVIS: Maybe I can point  
6 something out here. I think there was work done  
7 by ENSR probably for our office before Mr. Urban  
8 got involved that looked at things like that. So  
9 it may be that it was done prior to his  
10 involvement and he wasn't aware of some of it.

11 MR. LAMBERT: Okay.

12 MR. DAVIS: I just don't want the  
13 record to be misleading that ENSR never looked  
14 into certain aspects of it.

15 BY MR. LAMBERT:

16 Q. Yeah, okay. I'm just trying to get a  
17 sense of what it is exactly that ENSR did. So we  
18 can try to evaluate --

19 MR. DAVIS: To the extent he does.  
20 It's possible he doesn't know everything that  
21 ENSR did from 1985 to 1989, that's all.

22 MR. LAMBERT: Okay.

23 BY MR. LAMBERT:

24 Q. Well, you have mentioned that they were



1 a metal manufacturing facility similar to  
2 Gemeinhardt. You mentioned that they were, you  
3 thought there were elevated levels in a well  
4 immediately down gradient of the Emerson  
5 facility. Was there anything else that, is there  
6 anything else that you can think of that  
7 supported the conclusion that Emerson was a  
8 source of contamination in the area?

9 A. It was documented in the reports that  
10 the contamination was noted and that the  
11 potential source, the Emerson or the CBA  
12 property, as it also may be referred to. As far  
13 as the actual activities of how that information  
14 was gathered, I do not know the details.

15 Q. Do you know whether any soil samples  
16 were ever taken on the Emerson property?

17 A. I'm not aware of soil samples taken.

18 Q. Do you know whether anyone ever  
19 interviewed anyone in connection with Emerson  
20 operations?

21 A. I believe ENSR did interview the owner  
22 of the property. His name was Rex Rife and in  
23 talking to Mike Moore, he told me that he knew of  
24 him and talked to him. So therefore, I would



1 gather that he talked to Mr. Rife about his  
2 activities on the site.

3 Q. Did Mr. Moore tell you what Mr. Rife had  
4 told him concerning activities on the site?

5 A. I don't recall.

6 Q. Have you ever seen anything in the ENSR  
7 files relating to the discussion with Mr. Rife?

8 A. I don't recall.

9 Q. Since you have been project manager has  
10 anything been done in order to further  
11 investigate whether or not there is or was a  
12 source of contamination at the CBA or Emerson  
13 property and if so, to try to understand the  
14 nature of the source and its magnitude?

15 A. The sequence of wells was such that  
16 from, in my interpretation of the reports, a  
17 source of contamination was apparent and  
18 additional monitoring wells were installed  
19 sequentially to help to define the source and the  
20 extent of contamination.

21 Q. From the CBA property?

22 A. That's correct.

23 Q. We're using CBA and Emerson  
24 interchangeably.



1 A. Yes.

2 Q. Why don't we try and use CBA?

3 A. Okay.

4 MR. DAVIS: Emerson's back.

5 BY MR. LAMBERT:

6 Q. Do you remember which wells were  
7 installed in order to assess the extent of the  
8 Emerson plume or the CBA plume?

9 A. Well Number 7 is in the front yard,  
10 which is just up gradient of the building. Well  
11 Number 10 at the northwest side of the building.

12 Q. Is that a down?

13 A. Which is down gradient.

14 Q. Okay.

15 A. And Well Nest Number 18 is also down  
16 gradient, several hundred feet down gradient.

17 Q. Any others?

18 A. There were other well nests installed  
19 further down gradient that include, as I recall,  
20 would include Well Nest 11, 13, 17.

21 Q. But 10 and 18 were installed  
22 specifically for the purpose of evaluating the  
23 extent of the plume from Emerson?

24 A. That's my understanding. I was not



1 involved with the actual decision-making process.

2 Q. Apart from that work, has anything been  
3 done since you have been project manager to  
4 better understand the nature of that source or  
5 its extent?

6 A. No.

7 Q. To your knowledge has ENSR or anyone  
8 else working with ENSR collected information  
9 relating to the amount of volatile organic  
10 chemicals that were discharged or released from  
11 the Emerson facility?

12 A. I do not know.

13 Q. How about the concentration of materials  
14 that were released from the Emerson facility?

15 A. I dot do not know.

16 Q. Or the time period over which they were  
17 released?

18 A. I am not certain, but I believe there is  
19 some discussion of that in one of the ENSR  
20 reports, but I'm not certain.

21 Q. Besides ENSR there was another company  
22 who was involved on behalf of the, I guess it's  
23 on behalf of CBS or Gemeinhardt, I'm not sure  
24 which, on this project, is that correct?



1 A. Yes.

2 Q. What company is that?

3 A. EIS Environmental Engineers.

4 Q. Can you explain that what their role is  
5 vis-a-vis yours, vis-a-vis ENSR's?

6 A. ENSR is the consulting engineer for the  
7 site. EIS serves a role as a local consultant,  
8 local engineering firm for the client.

9 Q. Who does the planning with respect to  
10 the project?

11 A. The duties have been shared for the site  
12 investigation. ENSR has been the primary planner  
13 working with the client.

14 Q. Who's been responsible for the  
15 interpretation of data?

16 A. ENSR has been responsible.

17 Q. And has ENSR been responsible for the  
18 modeling, as well?

19 A. That's correct.

20 Q. From whenever it was that ENSR first  
21 became involved until today, there have been  
22 various field investigations done at or around  
23 the Gemeinhardt facility, is that correct?

24 A. Yes.



1 Q. Can you give me your best understanding  
2 of what they were in a sequential way? In other  
3 words, what was the first field work, what came  
4 after that? I'm not interested in reports right  
5 now, just in actual investigations in the field.

6 A. The work that was done going back to --  
7 This is before ENSR's time?

8 Q. Back to when?

9 A. Before ENSR's time?

10 Q. Yes, as much as you know. I'd just like  
11 to get an overview.

12 A. The history of the project as summarized  
13 in some of the reports is that back in the early  
14 1980's, there was a concern about elevated levels  
15 of volatile organics in wells nearby. There was  
16 also a concern about the wastewater discharge  
17 from the Gemeinhardt facility.

18 Private wells were sampled in the  
19 area extending down gradient from the Gemeinhardt  
20 site. I believe those private well  
21 investigations extended probably as far as, if  
22 not a little bit farther than the current  
23 location of Recovery Well Number 1, which is down  
24 Markle Avenue. Elevated levels of VOC's were



1 found in these wells.

2 At that point it was decided that  
3 these residents and businesses would be provided  
4 with clean water. I believe it was originally  
5 with bottled water and then eventually with new  
6 water mains being installed in the area.

7 Q. Who paid for that work?

8 A. I believe EPA originally paid for it and  
9 was reimbursed by CBS -- I should say by  
10 Gemeinhardt. At that time it's Gemeinhardt paid  
11 for that work. Then ENSR became involved in  
12 determining the nature of the contamination and  
13 the extent of the plume and was involved in the  
14 field investigations, installing monitoring  
15 wells.

16 A total of forty-three wells were  
17 installed over the course of time. Eighteen well  
18 nests were installed. Some of the well nests had  
19 two wells, some had five wells. The nests were  
20 installed at various locations along the presumed  
21 plume location and also to areas up gradient and  
22 to the side of the estimated location of the  
23 plume..

24 As these well nests were installed



1 and data were gathered, the nature and extent of  
2 the plume became better defined and additional  
3 wells were installed, such as Well Nests 17 and  
4 18 were installed much later on in the sequence  
5 of events.

6 Q. Were 17 and 18 the last monitoring wells  
7 installed?

8 A. I believe they were last, yes.

9 Q. Apart from whatever data was collected  
10 as a result of the installation of monitoring  
11 wells, was there any other data relating to  
12 either the soil conditions or the ground water  
13 conditions in the area of the facility collected  
14 by ENSR or EIS working with ENSR?

15 A. For all the wells, when the wells are  
16 drilled, the geology and hydrogeology of the area  
17 is carefully observed and monitored to help  
18 define the characteristics of the aquifer. Some  
19 tests were done, slug tests to determine the  
20 conductivity of the wells, of the aquifer.

21 Some of this type of information is  
22 hydrogeological information. I'm familiar with  
23 it. I am not an expert in it. So my explanation  
24 may not be entirely correct in the types of



1 things that they do, but when all these wells  
2 were drilled it was, it's a normal thing for the  
3 site investigators to define the characteristics  
4 of the aquifer to the extent possible so that as  
5 clear a picture as possible can be put together  
6 of what the nature of the aquifer is, both from a  
7 contamination point of view and hydraulics point  
8 of view.

9 Q. And that was done in this case?

10 A. That's correct.

11 Q. And the information that was collected  
12 from that exercise was accurately reported from  
13 the various reports?

14 A. I have no reason to believe otherwise.

15 Q. And apart from that work has ENSR or EIS  
16 collected any other data pertaining to conditions  
17 at Gemeinhardt or in the vicinity of  
18 Gemeinhardt? And I'm talking about soil data or  
19 ground water data.

20 A. At the Gemeinhardt site itself, there  
21 was an extensive investigation of soil  
22 contamination.

23 Q. When was that done?

24 A. That was, that was done, I believe,



1 beginning in 1984.

2 Q. It was done in stages?

3 A. Yes, it was.

4 Q. What were the stages?

5 A. There were certain locations at the  
6 plant that were identified as problem area, dry  
7 wells at the plant where wash waters potentially  
8 contaminated with chlorinated solvents were put  
9 into these dry wells.

10 Q. About five of them, five dry wells?

11 A. Five sounds right. Some of the, I  
12 believe three of the dry wells were excavated and  
13 I believe that was at the end of 1984, possibly  
14 into 1985 where the heaviest contamination was  
15 presumed to be. Additional investigation was  
16 done on the site. Borings were made of the soil  
17 in the area and additional contamination was  
18 found, primarily tetrachloroethylene. PCE we can  
19 call it.

20 Q. PCE?

21 A. I also may refer to it as PERK (phon.),  
22 but PCE is the material. That was found at  
23 concentrations, I believe as the highest  
24 concentration found in the soil borings was 55



1 milligrams per kilogram.

2 Q. So was there a soil investigation done  
3 in connection with the removal of the first two  
4 or three dry wells?

5 A. I can't recall exactly what was done at  
6 that time to identify the dry wells as the  
7 problem areas.

8 Q. Have you seen data that was generated  
9 with respect to the contamination associated with  
10 the soil that was removed as part of that  
11 operation?

12 A. I believe I have seen data on that  
13 soil. I don't recall exactly which report that  
14 would be in.

15 Q. And then you said that there was some  
16 additional data collected in connection with the  
17 removal of the remaining dry wells, is that  
18 right?

19 A. Additional data collected were the soil  
20 that was not removed, remaining soil at the  
21 site. The sequence was after the, after the soil  
22 samples were taken, then Gemeinhardt undertook a  
23 clean up activity which involved soil vapor  
24 extraction to remove residual contamination from



1 the soil at the site.

2 Q. And that was primarily PCE?

3 A. That is correct.

4 Q. Did it also include TCE and TCA?

5 A. The data that I saw showed very low  
6 levels of those materials.

7 Q. Apart from the data that was collected  
8 in connection with those two projects, are you  
9 aware of any other instance in which data with  
10 respect to either soil or ground water was  
11 collected by ENSR or by some contractor working  
12 under its supervision?

13 A. I guess I would say that one area that  
14 was not, that I did not mention was in the start  
15 up of the ground water recovery treatment system,  
16 we did analyze the water.

17 Q. Was that data reported somewhere?

18 A. Yes, it was.

19 Q. Where is it reported?

20 A. In the monthly report of, I believe,  
21 January 1993.

22 MR. LAMBERT: Chris, do you know  
23 whether that was provided to us?

24 MR. DAVIS: I don't think we



1 produced the monthly reports. I don't think it's  
2 obvious to me that that was within the scope of  
3 the document request, but they're certainly  
4 publically available and we can provide some or  
5 all of them, because there's a lot. These things  
6 went way back, to 1985.

7 MR. LAMBERT: Well, if it relates  
8 to the response action, then I think it's  
9 probably within the scope of the document  
10 request.

11 MR. DAVIS: Okay.

12 MR. LAMBERT: I presume that that's  
13 part of the response action.

14 MR. DAVIS: They were required  
15 under the EPA order, the first one.

16 MR. LAMBERT: Right.

17 MR. DAVIS: You'd like all of  
18 them?

19 MR. LAMBERT: I guess so, but  
20 particularly as soon as possible anything that  
21 contains data with respect to the ground water  
22 that was sampled in connection with start up of  
23 the extraction system.

24 BY MR. LAMBERT:



1 Q. When did the extraction system start up?

2 A. December of 1992.

3 Q. We'll come back to that. Let me just  
4 make sure that my list is complete at this  
5 point. In terms of data that's been collected,  
6 you talked about data that has been collected  
7 from monitoring wells installed by ENSR or under  
8 its supervision, you have mentioned geological  
9 type information that was collected in connection  
10 with the installation of the monitoring wells,  
11 you have mentioned sampling done of wells in the  
12 vicinity that were not installed by ENSR or EIS,  
13 you have mentioned soil analysis that was done in  
14 connection with two different response actions.  
15 Is there anything else you can think that of that  
16 was undertaken by ENSR or EIS that resulted in  
17 the generation of either soil or ground water  
18 data?

19 A. There were additional samples from the  
20 existing wells that were taken and analyzed  
21 subsequent to the 1988 report.

22 MR. DAVIS: Paul. Let me just point  
23 out that the witness tomorrow, who is from EIS,  
24 was also involved in early sampling and



1     analytical report. I don't know to what extent  
2     Mr. Urban is familiar with EIS's work which goes  
3     back to 1983, so I don't want to represent that  
4     he's necessarily knowledgeable about every data  
5     point that was gathered.

6                   MR. LAMBERT: Okay.

7                   BY MR. LAMBERT:

8                   Q.     Apart from the lists from before that I  
9                   recited in my last question and apart from  
10                  additional samples that were taken from the same  
11                  monitoring wells, is there anything else that  
12                  you're familiar with in the nature of soil or  
13                  ground water investigation?

14                  A.     No.

15                  Q.     Is there a schedule for, that has been  
16                  followed for the sampling of the monitoring wells  
17                  that have been installed, a quarterly or  
18                  semiannual or monthly or something like that?

19                  A.     There is a schedule, yes.

20                  Q.     Is it quarterly?

21                  A.     No. The schedule as defined in the  
22                  monitoring planning plan for the system is that  
23                  the recovery wells will be sampled quarterly and  
24                  the monitoring wells will be sampled on a five



1 year basis.

2 Q. Every five years?

3 A. That's correct.

4 Q. Once every five years?

5 A. Once every five years.

6 Q. When was the last time that the  
7 monitoring wells were all sampled?

8 A. We did a base line analysis of all the  
9 monitoring wells, I believe it was all the  
10 monitoring wells in September of 1992. I believe  
11 it was September, August, September. It was  
12 approximately a year ago.

13 Q. When was the last sampling done prior to  
14 that round?

15 A. The last complete sampling round prior  
16 to that was probably in 1988.

17 Q. Was there a partial between 1988 and  
18 1992?

19 A. Yes, there was.

20 Q. Was there one or more than one?

21 A. I know there was one where we selected  
22 certain wells to help to evaluate the change if  
23 any in the plume characteristics.

24 Q. When was that done?



1 A. That was done, I believe, in 1991.

2 Q. Apart from that sampling, can you think  
3 of any others other sampling rounds that were  
4 done, either full or partial, other than what you  
5 have mentioned?

6 A. There were, there was one other sampling  
7 period where we wanted to gather some additional  
8 information on conventional pollutants for  
9 evaluating the concerns of the treatment system  
10 and we sampled a few select wells at the center  
11 line of the plume to look at things like BOD,  
12 chloride sulfates.

13 Q. Did that also produce data with respect  
14 to VOC's?

15 A. I don't believe that did.

16 Q. Since you have been involved in the  
17 project have all of the samples been collected  
18 and handled and analyzed in a manner that's  
19 consistent with standard protocols for those  
20 tasks?

21 A. Yes, it has.

22 Q. You mention that sampling had been done  
23 of wells not installed by ENSR or by EIS,  
24 correct?



1 A. That's right.

2 Q. How many wells have been sampled over  
3 the course of the project that you're aware of,  
4 that is non-ENSR wells?

5 A. The non-ENSR wells that I refer to are  
6 private wells for drinking water sources or for,  
7 in the case of industry, process water sources, I  
8 presume. I don't know the exact number of those  
9 wells. I'm guessing it's on the order of fifty.

10 Q. Is there a log or a list that described  
11 each of the wells that has been sampled that you  
12 have seen?

13 A. Yes.

14 Q. Is it in one of the reports?

15 A. Yes.

16 Q. Do you recall which one it's in? I  
17 don't remember that.

18 A. It either it's in one of the 1988  
19 reports, either the preliminary or the final  
20 report.

21 Q. Do you know whether the depths of those  
22 wells, the depths at which they're screened is  
23 described in the reports?

24 A. I believe there is some description of



1 the screening if the information was available.

2 Q. Do you know whether the residential  
3 wells or the wells of other industrial facilities  
4 in the area were used in connection with the  
5 attempt to define the extent of the plume or  
6 plumes?

7 A. I did not develop the definition of the  
8 extent of the plume, but my understanding in  
9 talking with the people involved is that these  
10 private wells were used for the initial screening  
11 of determining where to put the monitoring wells  
12 and then the monitoring well data were used to  
13 define the extent of the plume.

14 Q. You mention that work was done in, I  
15 think you said 1991 related to a reevaluation of  
16 the extent of the plumes, is that correct?

17 A. There was a reevaluation of the nature  
18 of the plume.

19 Q. As opposed to the extent?

20 A. Yes. The wells that we sampled, as I  
21 recall were, the contamination was known to exist  
22 and we wanted to determine whether that  
23 contamination, the contaminant level was  
24 changing, whether going up or whether going down.



1 Q. And was that for the purpose of  
2 evaluating the extent of the plume?

3 A. It served the purpose of evaluating the  
4 nature of the plume. If the, the conclusion that  
5 was drawn was that the concentrations have not  
6 significantly changed over the two or three year  
7 period since the previous sampling and therefore,  
8 the source was considered to be relatively  
9 constant.

10 Q. Was residential well data considered in  
11 connection with that evaluation?

12 A. No. I don't believe the wells were  
13 resampled.

14 Q. So as far as you know the residential  
15 wells have not been used by ENSR in defining the  
16 nature and extent of the plume, but rather only  
17 in connection with deciding where to place  
18 monitoring wells, is that fair?

19 A. That's correct. The way residential  
20 wells were installed is there are, the procedures  
21 are potentially very different than the  
22 procedures for installing monitoring wells, as is  
23 the -- There's a need to know the exact screen  
24 interval to understand what the information means



1 and there are many unknowns about the nature of  
2 the residential wells, so therefore, any data  
3 that were collected from those wells could not be  
4 used with any degree of confidence.

5 Q. To the best of your knowledge, non-  
6 detects from residential wells were, have never  
7 been used by ENSR to circumscribe or limit the  
8 way in which a plume has been depicted in a  
9 report?

10 MR. DAVIS: Objection, leading.  
11 You may answer.

12 THE WITNESS: To my knowledge they  
13 have not be used in that manner.

14 BY MR. LAMBERT:

15 *Stop* Q. I was asking you before about ENSR's  
16 investigation of other potential sources of  
17 contamination in the area and we talked about  
18 Emerson and you said that you thought that the  
19 data related to Emerson showed the presence of  
20 both TCA and TCE. Has any investigation that  
21 ENSR has done or which has been done under its  
22 supervision shown the likely existence of a  
23 source of PCE contamination other than  
24 Gemeinhardt?



1           A.     I don't recall any sources of PCE  
2 specifically identified other than Gemeinhardt.

3           Q.     Can you recall any sources of TCE being  
4 specifically identified other than Gemeinhardt?

5           A.     The information from CBA site is what I  
6 would recall specific mention of that. Also  
7 other sites in the area that potentially used  
8 these types of materials.

9           Q.     Has ENSR or anyone working with it to  
10 your knowledge done anything to verify or to  
11 verify that other facilities in the area of used  
12 and discharged to the environment, TCA, TCE or  
13 PCE?

14          A.     The plume maps that were drawn which  
15 were based on the data that were collected showed  
16 plumes of chlorinated solvents outside of the  
17 so-called Gemeinhardt plume.

18          Q.     And those were drawn based upon ground  
19 water data that had been collected, correct?

20          A.     That's correct.

21                 *Stippled* Q.     My question is whether or not there is  
22 any information of an empirical nature, that is  
23 information that was collected in the field at  
24 specific facilities that showed that TCA, TCE or



1 PCE have been released by other facilities in the  
2 Gemeinhardt area?

3 A. In one of the reports, I'm not sure  
4 exactly which one it is, 1988 report, I believe,  
5 there is a map and listing of numerous facilities  
6 in the area that have the potential to, I'll say  
7 contaminate the ground water; (Number 1), because  
8 of their use of or potential use of solvents,  
9 (Number 2), because of the fact that there was no  
10 sewer system in the area, so septic tanks and dry  
11 wells were common practice in the area.

12 Q. Apart from that information, is there  
13 any other information that you're aware of that  
14 indicates that TCE, TCA or PCE have been released  
15 out of the facilities in the area apart from what  
16 we've already discussed?

17 A. One area farther off site, I don't  
18 recall the details, the Walerko Tool, I believe  
19 they were a source of chlorinated solvents and I  
20 believe that's beyond the area that we're talking  
21 about.

22 Q. Anything else?

23 A. Nothing comes to mind right now.

24 (Brief recess)



1 MR. LAMBERT: Would you mark as  
2 Exhibit 3 a report entitled Summary Report Soil  
3 Remediation with Soil Vapor Extraction, January  
4 1992?

5 \*0\* (Urban Exhibit No. 3,  
6 marked for identification.)

7 BY MR. LAMBERT:

8 Q. This is actually only part of that  
9 report. I copied the pages leading up to what I  
10 had a question about.

11 A. Okay.

12 Q. Do you recognize the document?

13 A. Yes, I do.

14 Q. Is this a report that was submitted when  
15 you were project manager?

16 A. Yes, it was.

17 Q. It was submitted to EPA?

18 A. Yes, it was.

19 Q. Relates to something you described  
20 earlier which is the remediation of soil that was  
21 left behind from the prior operation of the dry  
22 wells?

23 A. That's correct.

24 Q. In the summary section on Page 2-1 it



1        says that two wells were excavated in 1984. I  
2        think before you had testified that maybe that  
3        there were three that were excavated back then.  
4        Do you remember now that two were done in 1984,  
5        three were done just prior to 1992?

6            A.     Two were excavated in 1984. Of the  
7        other three, only one was removed.

8            Q.     Are two still in place?

9            A.     I believe two are still in place.

10          Q.     Have all been remediated?

11          A.     Yes, the entire.

12          Q.     All been addressed in one way or  
13        another?

14          A.     That's correct.

15          Q.     Would you look at the very last page of  
16        the exhibit which is Table 3-1? There is a  
17        reference going across the top to 10/5/88 and  
18        then there is one after that that is 7/85 and  
19        another one that's 7/85. Can you explain what  
20        the different columns relate to. In other words,  
21        what is the 10/5/88 column?

22          A.     Okay. The 10/5/88, the date of the  
23        sampling and that was a sampling that was done  
24        subsequent to the sampling that was done in 1985,



1 which were the other two samples.

2 Q. Were exactly the same borings sampled in  
3 both time periods?

4 A. You can't sample exactly the same  
5 boring. You can sample close to the same  
6 location.

7 Q. Was that what happened?

8 A. That's correct, but it was judged to be  
9 the same, the same designation of the sample.

10 Q. Had anything been done to the soil that  
11 was sampled between 1985 and 1988 that you're  
12 aware of?

13 A. Not that I'm aware of.

14 Q. Was any sampling done after 1988 in the  
15 area of these borings?

16 A. Yes.

17 Q. Was that done after the soil vapor  
18 extraction work was completed or while it was  
19 being completed?

20 A. Yes, it was.

21 Q. Can you explain what the difference is  
22 between low level and medium?

23 A. The results are presented that way  
24 because of two different methods of analysis.



1 I'm not an analytical chemist, so I don't know  
2 exactly what the implication is, but there were  
3 these two methods of analysis done in 1985 to  
4 presumably get a better understanding of what was  
5 in the soils..

6 Q. Can you provide us any help on what the  
7 difference is between low level and medium level?

8 A. In the footnote here they do list the  
9 two methods.

10 Q. Right, I read that, too, but that's why  
11 I still have a question.

12 A. Okay. The difference, I believe, and  
13 again, I'm not an analytical chemist, but the  
14 methanol method was something that's being  
15 considered by certain people to improve the  
16 capture of volatile organics in soil samples and  
17 that's the only insight I can offer on those two  
18 at this point.

19 Q. It's correct, is it not, that PCE was  
20 the last of the solvents used at the Gemeinhardt  
21 facility that was actually discharged with  
22 wastewater to the dry wells?

23 A. That's my understanding.

24 Q. And that was preceded by TCA and TCA was



1 preceded by TCE?

2 A. That's my understanding.

3 Q. And is it also your understanding that  
4 the PCE was used roughly from 1980 until whenever  
5 it is the discharge stopped, somewhere around the  
6 end of 1984?

7 A. As I recall, 1980 was probably  
8 reasonable start date of the PCE.

9 Q. And do you remember that or do you  
10 remember reading at least that the start date for  
11 TCA was around 1972?

12 A. That's what I recall.

13 Q. The start date for TCE is described as  
14 sometime in the 1940's. Can you be any more  
15 precise as to when TCE was first discharged?

16 A. No.

17 Q. Do you know when the plant started up?

18 A. All I can say is that the report says  
19 that the plant began operation somewhere in the  
20 1940's is what I recall the report saying.

21 Q. To your knowledge has ENSR made any  
22 effort to determine exactly when in the 1940's it  
23 started up?

24 A. To my knowledge the information that's



1 in the report is all that ENSR knows.

2 Q. Have any of the efforts to determine the  
3 extent of the TCE plume from the Gemeinhardt  
4 facility taken into account when the TCE  
5 discharge first began?

6 A. I'm not sure I understand your question.

7 Q. ENSR has made various evaluations of the  
8 extent of the plumes that actually emanate from  
9 the Gemeinhardt facility as opposed to plumes  
10 that might be coming from somewhere else, is that  
11 correct?

12 A. That's correct.

13 Q. In the course of those evaluations has  
14 one of the factors that has been taken into  
15 account, is one of the factors that has been  
16 taken into account when it was that TCE was first  
17 discharged?

18 A. In one of the ENSR reports there was a  
19 modeling study that was described that attempted  
20 to show how a plume could progress with the  
21 discharge at the Gemeinhardt modeling site. The  
22 modeling results are provided in that report and  
23 that the modeling -- I am not familiar with the  
24 details of it, but I understand that to be taking



1 into consideration the geology and  
2 hydrogeological characteristics of the aquifer.

3 Q. But the question is whether it took into  
4 account when the discharge started?

5 A. I don't know for sure. I believe it  
6 did, because the results did attempt to show the  
7 progression of a plume over a period of time.

8 Q. And do you know what date was assumed  
9 for the start of the TCE discharge?

10 A. No, I do not know.

11 Q. Table 3-1 reports on PCE, concentrations  
12 but it doesn't mention TCA or TCE. Can you  
13 explain why it is that Table 3-1 only deals with  
14 PCE and not the other two contaminants?

15 A. The data from these borings showed PCE  
16 much, much greater than the other two  
17 components. As I recall, the levels of TCE and  
18 TCA were either non-detect or at much, much lower  
19 levels.

20 Q. Did ENSR develop a working theory as to  
21 what had happened to the TCE and TCA that had  
22 gone into the same dry wells?

23 A. I don't recall any hypotheses as to what  
24 might have happened.



1 Q. What is your understanding as to how the  
2 three contaminants made their way into the dry  
3 wells?

4 A. My understanding is that there was a  
5 disposal system with underground piping to each  
6 of the dry wells and the wash waters were  
7 disposed of in this drainage system. I don't  
8 recall whether it was inside the facility or  
9 outside the facility where the actual drain was.

10 Q. How did the solvents get into the  
11 wastewater?

12 A. My understanding of their process is  
13 that they used the solvents for degreasing the  
14 materials that there manufacturing, these musical  
15 instruments and the instruments are then washed  
16 with water and the water washes off the solvents  
17 and becomes dissolved or entrained in the water  
18 and the water is what was disposed of.

19 Q. To your knowledge did ENSR ever try to  
20 learn how much wastewater was discharged to the  
21 dry wells on either a daily basis or weekly basis  
22 or hourly basis or any other basis?

23 A. I don't recall any numbers, but I  
24 believe there was an assessment of the amount of



1 water, the nature of the washing activity to  
2 develop some kind of an estimate of the volume of  
3 water discharged.

4 Q. Do you remember where that is to be  
5 found?

6 A. I believe there was a discussion of that  
7 in the 1988 reports, the preliminary or final  
8 reports, but quite frankly, I don't recall  
9 exactly what was discussed.

10 Q. I remember the discussion of the  
11 process, but the only number that I've seen is a  
12 2,500 gallon, I think per day number that appears  
13 in one of the orders and I wondered whether or  
14 not and where the source of that number is  
15 described. I wonder if there is someplace you  
16 could direct me to so I could look to find out  
17 how much water was discharged as best as anybody  
18 can say.

19 A. I don't recall. I'd say the fact that  
20 there, they did truck the water off site for a  
21 period of time after the dry wells were closed  
22 and the fact that they did design a wastewater  
23 treatment facility for this water, that there was  
24 some estimate of the volume of water that was



1 generated.

2 Q. Can you provide me with that, do you  
3 know?

4 A. I do not have that information. My  
5 guess is that Mr. Nye of EIS who you will be  
6 talking to tomorrow will have that information  
7 readily available.

8 Q. Do you know whether ENSR has ever tried  
9 to estimate how much actual solvent went down the  
10 dry wells in pounds or gallons?

11 A. I recall some discussion of that two or  
12 three years ago, but I don't believe that we have  
13 ever done any kind of a firm calculation of the  
14 amount of material.

15 Q. You never tried to do a mass balance  
16 calculation or anything like that?

17 A. That's correct.

18 Q. Have you ever tried to find out how much  
19 solvent Gemeinhardt purchased on a yearly basis  
20 or monthly basis to help try to understand how  
21 much might have gone down the drain?

22 A. I'm not aware of any such activity.

23 Q. To your knowledge has the modeling that  
24 has been done taken into account either the



1 volume of the wastewater discharge or the amount  
2 of solvent or the concentration of solvent that  
3 would have gone down into the dry well system?

4 A. My understanding of the modeling is that  
5 it did not, although I'm not positive on that,  
6 but regarding the volume of water, my  
7 understanding of the aquifer, I'm not a  
8 hydrogeologist, but my understanding of the  
9 aquifer is that the volume of water that they  
10 were discharging would have negligible impact on  
11 any of the water flow regimes in the aquifer.

12 Q. Was the answer to my question no, that  
13 the question was whether any, whether it was  
14 taken into account on whether the amount of  
15 wastewater or the amount of the solvents was  
16 taken into account in the modeling? I think  
17 you're saying the water was not. Do you know  
18 whether the solvents were taken into account, the  
19 volume of the solvents or mass of solvents?

20 A. My answer is that I do not know. My  
21 understanding of the modeling is that it probably  
22 was not taken into account.

23 Q. How deep is the ground water beneath the  
24 Gemeinhardt facility, approximately?



1           A.     It varies, but it's approximately  
2     fourteen, fifteen feet below the surface.

3           Q.     How deep were the dry wells?

4           A.     I don't recall exactly, but I seem to  
5     recall something on the order of about six feet  
6     deep, but I am not sure of that.

7           Q.     Was there a gravel seepage bed at the  
8     Gemeinhardt facility?

9           A.     There is a septic field or a leach field  
10    of sorts at the north side of the building. The  
11    dry wells, I believe the construction was a  
12    gravel bed, but beyond that, I'm not aware of the  
13    details.

14          Q.     Do you know what an injection well is?

15          A.     Yes.

16          Q.     What's an injection well?

17          A.     Injection well is where water is pumped  
18    into a well and the well is screened such that  
19    the water could then flow into the aquifer.

20          Q.     Is there any difference in terms of how  
21    an injection well would operate and a dry well  
22    would operate with respect to impact of the  
23    material put into the well upon the aquifer?

24          A.     In the sense that any liquid put into



1 the well will in fact flow into the aquifer, they  
2 are the same. The fact that this dry well may  
3 have been, or is to my knowledge above the water  
4 table, the flow would, from the well would tend  
5 to be downward as opposed to an injection well  
6 that is installed in the aquifer. Then the flow  
7 out of the injection well would then be outward,  
8 more of a horizontal plane.

9 MR. LAMBERT: Next I'd like to have  
10 marked as Exhibit 4 an excerpt from a document  
11 called Design Report for Ground Water Recovery  
12 and Treatment System, June 1991.

13 \*0\* (Urban Exhibit No. 4,  
14 marked for identification.)

15 BY MR. LAMBERT:

16 Q. Would you identify this as a report that  
17 ENSR prepared and submitted to EPA?

18 A. Yes, I do.

19 Q. This was done during your tenure?

20 A. Yes.

21 Q. Would you look at Figure 2-2, it's on  
22 Page 2-3. This figure shows the locations of  
23 three different recovery wells and my question to  
24 you is whether or not the recovery wells that are



1 now operating were installed in the locations  
2 shown in this figure?

3 A. They are essentially correct. I would  
4 say that the Recovery Well Number 2 is more  
5 towards the west, towards towards the left in  
6 this drawing, but still within that corner of  
7 Krieghbaum and Hively Avenue.

8 Q. So it's closer to the Krieghbaum and  
9 Hively, but still in the same block?

10 A. Yes, it is.

11 Q. Were you involved in the decision-making  
12 as to where the wells would be placed?

13 A. Yes, I was.

14 Q. Could you explain the rationale for  
15 placing the three wells where they were placed,  
16 starting with RW-3 and then working back to  
17 RW-1? Not a lengthy explanation. Just, I'd just  
18 like to have a brief summary of the rationale.

19 A. Okay. The wells needed to be placed  
20 within the plume area that was identified. The  
21 reason for having three wells is primarily to do  
22 these things. Recovery Well Number 3 intent was  
23 to capture the contamination reasonably close to  
24 the source. Recovery Well Number 2 originally



1 was intended to be down gradient, which would be  
2 to the north or up in this drawing of the CBA  
3 building shown in the drawing with the intent of  
4 capturing the known contamination at that site.

5 Q. At the CBA site?

6 A. At the CBA site, in other words, the  
7 plume showed high concentrations in that area.  
8 The intent would be that the Recovery Well Number  
9 2 would help to capture that material. Recovery  
10 Well Number 1 was located to capture the leading  
11 edge of the plume.

12 Q. Do you recall where the leading edge of  
13 the plume was envisioned to be at the time that  
14 the recovery well was planned for that location?

15 A. Directly across the street from Recovery  
16 Well Number 1, which would be down in this  
17 drawing, because it's to the south is Monitoring  
18 Well Number 17 and that well came up clean when  
19 we sampled that well. That was installed later  
20 on in the process. Up gradient of that well  
21 there was contamination detected, so the  
22 assumption or the interpretation of that data was  
23 that the plume had not yet reached Recovery Well  
24 Number 1 location and therefore, the well was



1 located there to capture the plume.

2 Q. When you say the plume had not yet  
3 reached that location, are you referring to the  
4 Gemeinhardt plume or are you referring to some  
5 combined plume?

6 A. Because of the nature of the  
7 contamination here, it's a combined plume. We  
8 can't differentiate between the sources.

9 Q. Apart from the Well Nest 17, was there  
10 any other basis for believing that the combined  
11 plume stopped short of Recovery Well Number 1?

12 A. There was. There were other monitoring  
13 wells that indicated concentrations of or  
14 concentration or lack of these contaminants.  
15 Monitoring Well Number 11, I believe, was to the  
16 south and the east of that well showed some level  
17 of contamination. Recovery Well Number 13 to the  
18 north of that well showed no TCE or PCE. In one  
19 of the samples it did show some level of 1,1,1  
20 TCA. In subsequent samples it showed either non-  
21 detect or very low levels of any of the  
22 components. Based on this information, the  
23 extent of the plume was judged to be not yet at  
24 RW-1.



1 Q. Do you know how deep in the aquifer the  
2 three wells were screened?

3 A. I don't know exactly. I know we have  
4 information that describes what the screening of  
5 these wells was.

6 Q. Do you recall how the depths of the  
7 screens were determined? How did you decide  
8 where the screens would go?

9 A. That decision is left to the  
10 hydrogeologist and what he or she believes is  
11 appropriate for what we know at that point and  
12 what we still need to know at that point, so that  
13 those decisions were made by a hydrogeologist.

14 Q. I'm referring now to the recovery  
15 wells.

16 A. Oh, the recovery wells.

17 Q. Yes.

18 A. I'm sorry. I'll back up. The recovery  
19 well is screened through the entire depth of the  
20 aquifer and by that, I believe the screen depth  
21 for that well is, I believe it's 75 feet of  
22 screen. There is a drawing in this that does  
23 list that.

24 Q. If you turn to Page 2-8 do you see that



1 in the middle paragraph, the reference to 75 feet,  
2 125 feet and 75 feet?

3 A. That's correct.

4 Q. Are those numbers correct in the sense  
5 that that was actually done when the wells were  
6 put in?

7 A. To my knowledge, yes, that is what was  
8 installed.

9 Q. Turn back to Page 2-6 and there's a  
10 reference there in Table 2-1 to the estimated  
11 concentrations of VOC at recovery wells. Can you  
12 tell me how those numbers were arrived at?

13 A. These numbers are intended to be design  
14 concentrations for the purpose of designing a  
15 recovery and treatment system that will continue  
16 to meet the discharge requirements. Therefore,  
17 the concentrations of each component were  
18 conservatively estimated based on the highest  
19 concentrations that were detected up gradient of  
20 the particular recovery well.

21 Q. Look at RW-1 and could you explain to me  
22 how the 2,000 for TCA and 700 for TCE were  
23 derived?

24 A. They're based on the up gradient



1 concentrations of these, of these components.  
2 Now, by up gradient, it would be up gradient up  
3 to the point of the next well, up gradient.

4 Q. So what you're saying is that 2,000  
5 parts per billion of TCA would have been the  
6 highest concentration observed between the  
7 locations of Recovery Well 2 and Recovery Well 1?

8 A. That was the original approach to  
9 dealing with this. Now, that original approach  
10 was based on the location of the wells, the  
11 recovery wells in the original thinking which  
12 Recovery Well Number 2 would have been down  
13 gradient from the CBA property. With the  
14 relocation of the well, Recovery Well Number 2,  
15 the actual mechanism of choosing this  
16 concentration then involved a certain amount of  
17 engineering judgment based on the capture zone of  
18 the wells and the distances down gradient and  
19 that type of thing.

20 Q. What was the rationale for moving the  
21 Recovery Well Number 2 from down gradient of the  
22 Emerson to up gradient of Emerson?

23 A. It was a matter of access to the site to  
24 install a well. It's all private property in the



1 area.

2 Q. You said that the recovery system  
3 started in December of 1992?

4 A. That's correct.

5 Q. And I think you said that the plan  
6 called for ENSR to report concentrations at the  
7 recovery wells on a quarterly basis, is that  
8 right?

9 A. The monitoring plan states that we will  
10 monitor on a quarterly basis and we will report  
11 on an annual basis.

12 Q. So the monthly reports don't have this  
13 data in them yet?

14 A. The monthly reports are no longer being  
15 issued at EPA's, I would say permission. That's  
16 not the right word, but we're no longer issuing  
17 the monthly reports.

18 Q. Has the data from the recovery wells  
19 been reported to EPA yet?

20 A. Only from the start up period. We, in  
21 the, I believe it was the last monthly report  
22 that was issued, as we mentioned previously, the  
23 data from the recovery wells is included in that.

24 Q. When you say start up period, is that



1 December of 1992?

2 A. That's right.

3 Q. So there's only been one set of data  
4 that has been collected and reported from the  
5 recovery wells, is that right?

6 A. That's correct.

7 Q. And we would find that in the monthly  
8 report for January?

9 A. I believe it was January, yes.

10 MR. LAMBERT: Any chance of having  
11 that here tomorrow for the next gentleman along?

12 MR. DAVIS: I'll try, but I don't  
13 know that this witness, Mr. Nye will be  
14 knowledgeable about it, but I'll see if I can dig  
15 it out.

16 MR. LAMBERT: I'd like to ask the  
17 reporter to mark with the next exhibit number a  
18 document called Final Report Hydrogeological  
19 Investigation and Hazard Evaluation prepared by  
20 ENSR in October of 1988.

21 \*0\* (Urban Exhibit No. 5,  
22 marked for identification.)

23 BY MR. LAMBERT:

24 Q. This is an excerpt from that document.



1 I believe it's everything but the appendices.

2 Are you familiar with this document?

3 A. Yes, I am.

4 Q. This was prepared before you became  
5 involved, I take it?

6 A. That's right.

7 Q. But are you familiar with its contents?

8 A. Yes, I am.

9 Q. Did you review it for purpose in  
10 preparation for the deposition?

11 A. Yes, I did.

12 Q. Am I correct that the, that one of the  
13 purposes for the hydrogeological investigation as  
14 described in the report was to determine the  
15 extent of the off site contamination derived from  
16 the Gemeinhardt facility?

17 A. I believe that was the purpose.

18 Q. And this report contains an analysis of  
19 that subject, does it not?

20 A. Yes, it does.

21 Q. And that analysis was based upon all of  
22 the data that was collected up to the time that  
23 the report was issued, is that correct?

24 A. Actually, in this document the sampling



1 from Well Nests 17 and 18, I believe, are not  
2 included in some of the analyses.

3 Q. And when was the data from those two  
4 well nests available?

5 A. I believe they were collected and the  
6 samples were collected and the analyses were  
7 completed in September of 1988.

8 Q. And the data from those well nests  
9 including analytical data is reported in the  
10 report?

11 A. I believe it is, that's correct.

12 Q. And are you saying that even though the  
13 data was reported, it was not taken into account?

14 A. It was not taken into account on some of  
15 the, some of the sub parts of this report.

16 Q. Why is that?

17 A. I do not know why not.

18 Q. How do you know that it wasn't taken  
19 into account?

20 A. In discussions with the hydrogeologist  
21 that prepared parts of this report.

22 Q. Is that Mr. Moore?

23 A. Mr. Moore.

24 Q. Did he tell you why it wasn't taken into



1 account?

2 A. I don't recall why it may not have been  
3 taken into account except that the way reports  
4 are prepared, this report probably began in  
5 August, is my guess, of 1988 and maps were drawn  
6 based on the data that were available at the time  
7 and it goes through certain review cycles and  
8 updates and changes and the data that came in on  
9 the other well nests came in at the last minute  
10 and my guess -- I'm only guessing -- is that  
11 based on the nature of trying to get a report  
12 out, the data from those two wells were not  
13 included in every part of the analysis of the  
14 report.

15 Q. Weren't those two wells installed with  
16 the specific purpose of trying to determine the  
17 extent of the plumes from Number 1, Gemeinhardt  
18 and Number 2, Emerson?

19 A. They were installed with the intent of  
20 determining the extent of contamination for the  
21 purposes of determining extent and also  
22 evaluating remedial alternatives.

23 Q. Have you actually asked Mr. Moore why  
24 the data from those two wells was not taken into



1 account in the analysis?

2 A. I don't recall the exact conversation.  
3 We have talked about it. I don't recall if I  
4 asked him exactly what you have stated, but we  
5 have discussed why these data would not be  
6 included and as I recall, it was the discussion  
7 basically that I have just given to you.

8 Q. Well, did he tell you that or are you  
9 speculating that that might have been the reason?

10 A. I don't recall him exactly saying in  
11 those words, so I would have to say that on that  
12 basis, that I am speculating.

13 Q. I'm a little bit confused now. Did you  
14 ever specifically inquire as to why the data from  
15 Well Nests 17 and 18 were not taken into account  
16 in the analysis that was submitted to EPA under  
17 the heading Final Report?

18 A. I have inquired. The reason why I would  
19 inquire is that I, in designing the treatment  
20 system and trying to determine where the Recovery  
21 Well Number 1 should be, I needed to know the  
22 extent of contamination and understand where to  
23 place the well and for that reason, I had the  
24 discussions. I don't recall the exact nature of



1 the discussions as to exactly why they were not  
2 included in here, but I know that Mr. Moore and I  
3 did discuss the, these additional data and what  
4 the implication of those additional data are on  
5 the extent of contamination.

6 Q. Do you know whether the data from either  
7 of those wells was taken into account at all in  
8 the modeling that was described in the October  
9 1988 report? In other words, do you know whether  
10 it was taken into account for any purpose?

11 A. I'm not aware that the -- I guess to  
12 clarify, the plume -- If by modeling, are you  
13 referring to the plume maps?

14 Q. That were generated by the modeling  
15 exercise.

16 A. Okay. There are plume maps that are  
17 generated by evaluation of the data and there  
18 were also modeling, separate modeling runs that  
19 were conducted. I do not know how the data were  
20 incorporated if at all into that information  
21 except on the plume maps. In my discussions with  
22 Mike Moore, I understood that they were not  
23 included in the development of the plume maps.  
24 The plume maps are actually hand drawn. Those



1 are not computer generated maps. So there was an  
2 evaluation there of the data and they were not  
3 included in that.

4 Q. Look at Figure 1-1. Can you tell us how  
5 the site area boundary was arrived at?

6 A. No, I can't. I think the --

7 MR. DAVIS: Don't speculate if you  
8 don't know.

9 THE WITNESS: Okay, fine.

10 BY MR. LAMBERT:

11 Q. Would you look at Page 1-6? At the  
12 bottom of the indented portion of the text there  
13 is a sentence which says that the dissolved PCE  
14 can be traced to a point approximately 1,500 feet  
15 north northwest of the site. My question is  
16 whether that distance, if you know, was a  
17 conclusion of the hydrogeologist who drew the  
18 plume map or whether that was derived from the  
19 modeling that was done?

20 A. I believe that was derived from the  
21 analyses of the monitoring wells.

22 Q. Has ENSR ever estimated the number of  
23 feet per year that either ground water moves at  
24 through this area or that the VOC's that we've



1       been talking about move at through the area?

2           A.     According to the reports, they've  
3       estimated the distance that ground water will  
4       travel in a year.

5           Q.     And what distance is that?

6           A.     As I recall, the number was  
7       approximately 150 feet per year.

8           Q.     Is that the same for each of the three  
9       compounds?

10          A.     That's the ground water. The movement  
11       of contaminants can vary. This is a fate and  
12       transport type of a question that I am not  
13       qualified to answer, but what I understand is  
14       that retardation factors can reduce the speed at  
15       which a particular contaminant will move in the  
16       ground water.

17          Q.     Did the data that came from Monitoring  
18       Wells 17 and 18 lead to any revision in the  
19       estimate as to the extent of the PCE plume for  
20       from the Gemeinhardt property?

21          A.     PCE was not detected in either of those  
22       monitoring wells, to my knowledge, to my  
23       recollection, and therefore, there was no change  
24       in the assessment of PCE plume.



1 Q. So the estimate that appears on Page 1-6  
2 of 1,500 feet is still the working number as far  
3 as ENSR is concerned?

4 A. As far as ENSR is concerned, considering  
5 the time that's passed, but essentially.

6 Q. Right. This was in 1988?

7 A. Right.

8 Q. And how many years had PCE been  
9 discharged at the time this report was written?

10 A. If disposal began in 1980 and these  
11 analyses were done in 1988, then there's a  
12 potential for eight years.

13 Q. And that would be approximately how many  
14 feet per year for PCE?

15 A. Approximately 200.

16 Q. Has ENSR done any work with respect to  
17 trying to differentiate the rate of transport of  
18 PCE versus TCE versus TCA?

19 A. This is an area that I am not well  
20 versed in in terms of fate transport, so I do  
21 not know specifically what ENSR has done,  
22 although I would say that these contaminants are  
23 commonly found at various sites and ENSR has been  
24 doing a lot of work in fate and transport of



1       these materials.

2           Q.     Have you heard any discussions since you  
3     have been involved in this project with respect  
4     to whether it would be reasonable to expect one  
5     or the other of the three to move faster or  
6     slower than any of the other three?

7           A.     I don't recall any specific discussions.

8           Q.     Has any investigation been done that  
9     you're aware of to determine whether there are  
10    any parts of the aquifer down gradient of  
11    Gemeinhardt that would inhibit the transport of  
12    contaminants with the ground water?

13                   MR. DAVIS:   Before he answers, let  
14    me just point out that this is a subject that's  
15    being looked at by our experts and may be the  
16    subject of expert testimony.

17                   BY MR. LAMBERT:

18           Q.     Now you can answer.

19           A.     Okay.   Again, I'm not a hydrogeologist  
20    and I don't know the implications of all the  
21    hydrogeological investigations.   In terms of the  
22    plume map, there is an apparent change in the way  
23    the plume seems to be moving, but there's no  
24    clear explanation as to why that might be.



1 Q. Can you explain in a little more detail  
2 what it is you're referring to?

3 A. At the CBA property there appears to be,  
4 in the way the plume maps are drawn, there  
5 appears to be a slight shift in the movement of  
6 the plume based on the limited data that were  
7 available to draw that map.

8 Q. When you say based on a shift in the  
9 movement, are you referring to the direction or  
10 the rate?

11 A. From my understanding, it is probably  
12 the direction.

13 Q. It seems to move a little more towards  
14 the north and a little less towards the west?

15 A. Correct. That information is based on,  
16 it's my understanding it's based on the data from  
17 Monitoring Well Number 10.

18 Q. Has ENSR done any analyses or  
19 investigation as to what might account for that?

20 A. I do not know.

21 Q. None that you're aware of?

22 A. None that I'm aware of.

23 Q. You said that the 1,500 foot limit for  
24 PCE came not from the modeling, at least to the



1 best of your knowledge, but rather from the  
2 analysis of some hydrogeologist who was working  
3 without a model, is that right?

4 A. That's my understanding.

5 Q. Can you tell me whether there was some  
6 particular well or wells that were taken into  
7 account in arriving at that 1,500 foot estimate?

8 A. I don't recall which well, whether it  
9 was Well Nest 12 or Well Nest 7 that would have  
10 shown that. I don't recall if PCE did show up in  
11 Well Nest 7 or not.

12 Q. Throughout the report there are various  
13 references to the limits of plumes and I wanted  
14 to know whether or not, when the report refers to  
15 the limit of a plume, it is purporting to  
16 describe the point at which one would get a non-  
17 detect if one were to sample there as opposed to  
18 whether, as opposed to a point where one would  
19 get some other reading which was deemed to be  
20 somehow insignificant. Do you know the answer to  
21 that?

22 A. My understanding of the extent of the  
23 plume at the far end is that it was based on a  
24 non-detect. If you recall, the extent of the



1 plume as shown as dotted lines on some of the  
2 drawings and that's because we don't know exactly  
3 where up gradient of Monitoring Well Number 17  
4 that the plume extends to, but because of the  
5 non-detects in 17, we, it was interpreted that  
6 the plume did not extend that far. With regard  
7 to the PCE plume, I do not know the exact  
8 rationale behind it, because I don't recall  
9 whether Well Nest 7 had PCE in it, but once  
10 again, this was an activity that was done by the  
11 hydrogeologist and I was not directly involved in  
12 the decision-making process.

13 Q. Would you turn to Page 2-3 and read the  
14 paragraph at the bottom to yourself? If you need  
15 to, you can look back to read more to get the  
16 context.

17 Let me tell you what my question is  
18 and then you can take a minute to read back if  
19 you need to.

20 A. All right.

21 Q. It refers in the very last line to the  
22 site and the site is used in different ways in  
23 different parts of the report. What I'd like to  
24 know is whether the site there refers to the



1 Gemeinhardt facility?

2 A. Based on the information here and the,  
3 my knowledge of the concentrations detected at  
4 both the CBA sites and at the Gemeinhardt  
5 property, presumably in Well Nest Number 5, the  
6 site in this case referred to the Gemeinhardt  
7 property, that would be my understanding.

8 Q. Would you look at Page 2-4, please.  
9 Would you look at the bottom two bullets?

10 A. Okay.

11 Q. Where are Well Nest 17 and 18 screened?

12 A. I don't know the exact depths.

13 Q. It says at the bottom of Page 2-4 that  
14 the purpose of these well locations was to  
15 investigate for the northern boundary of ground  
16 water borne VOC near the bedrock surface. Do you  
17 recall that they were screened near the bedrock  
18 surface?

19 A. As I recall, they are screened -- One  
20 of the wells in each nest is screened near the  
21 bedrock surface. I don't know exactly how close,  
22 but the Well Nest 17 has another screened area  
23 that's well above that. Well Nest 18, I believe  
24 it's a three well nest. I don't recall exactly,



1 and that would be again screened at two different  
2 levels, well above the bottom of the well.

3 Q. Would you turn to the next page and look  
4 at the third bullet? Is it still your testimony  
5 that to the best of your knowledge, at least, the  
6 data from Well 17 was not taken into account in  
7 the analysis of the extent of the plumes?

8 MR. DAVIS: I think he may have  
9 referred to particular figures.

10 MR. LAMBERT: I think he referred  
11 to figures, but he also referred to the analysis.

12 MR. DAVIS: Go ahead.

13 MR. LAMBERT: We can get to the  
14 bottom of that, though, easily enough.

15 BY MR. LAMBERT:

16 Q. Does it refresh your recollection that  
17 it was taken into account in the analysis?

18 A. The evaluation of the extent of the  
19 plume, it was taken -- It was not taken into  
20 account in the figures. I don't recall if it was  
21 explicitly taken into account in a narrative on  
22 the extent of the plume.

23 Q. It's taken into account on Page 2-5,  
24 isn't it?



1           A.     That no VOC were detected in Well Nest  
2     17.

3           Q.     How do you know that it wasn't taken  
4     into account in the drawing of the plumes  
5     associated with this report?

6           A.     When I --

7                     MR. DAVIS:   Do you want to look at  
8     the drawing?

9                     THE WITNESS:  No, I think I  
10    recall.  When I --   This was done before my time  
11    on the project.  When I looked at the plume maps  
12    and tried to understand how they were drawn, the  
13    question arose --  whether I raised it, whether  
14    somebody brought it up, that's where I was  
15    asking, trying to understand what was done and  
16    what the sequence of events was and to my  
17    recollection, that's how it was, it was brought  
18    to my attention that the data from Well Nest 17  
19    was not incorporated into the plume maps.

20                    BY MR. LAMBERT:

21           Q.     When did you find that out?

22           A.     I can't recall exactly whether it was  
23    --  It was probably in, I'm guessing in 1992.  
24    No.  Can I reevaluate?



1 Q. Sure.

2 A. I'm thinking. If I can put a date on  
3 it, it would have come while we were trying to  
4 understand the location and pumping rates of the  
5 Recovery Well Number 1 and in order to understand  
6 what was going on and how much we had to pump, I  
7 needed to look at the plume maps, so that's --  
8 I don't know the exact date, but I'm thinking it  
9 may have been somewhere in the order of 1991.

10 Q. Is it your belief that all of the plume  
11 maps and all of the modeling maps contained in  
12 this report are erroneous for failure to include  
13 the data from Monitoring Well 17?

14 A. No. In redoing the plume maps, first of  
15 all, the PCE map, there is no impact from those  
16 two monitoring wells. The TCE map, if I got  
17 these correct -- Maybe I should look at these,  
18 but I believe it was the TCE map the data from  
19 Well Nest 18 was consistent with the map and as  
20 was the, in that plume map in this report, the  
21 extent of the plume was not as far as Well Nest  
22 17, so therefore, there would be no need to  
23 change that map, as I recall, in terms of --  
24 right, in terms of Well Nest 17 data.



1 Q. You're saying that the TCA map remained  
2 the same?

3 A. TCE.

4 Q. The TCE remained the same?

5 A. TCE would have remained essentially the  
6 same. I believe additional data makes some  
7 slight changes, but the extent of the plume stays  
8 basically the same. The TCA map, the 1,1,1 TCA  
9 map there were changes made and the nature of  
10 those changes was that Well Nest 17 indicated  
11 that the plume had not yet reached that distance  
12 and therefore, the map was redrawn to show the  
13 extent of the plume to be upgraded, but the  
14 furthest extent of the plume be up gradient of  
15 Well Nest 17.

16 Q. This is the TCA plume?

17 A. The TCA plume. I hope I have that  
18 right. I believe I have that correct in terms of  
19 the -- I'll check the model. Here we go. Maybe  
20 I should confirm that before -- Okay, TCA plume  
21 was changed, that's right.

22 Q. To be shorter?

23 A. To be shorter.

24 Q. Was TCE detected in Well Nest 17?



1 A. In the 1988 samples it was not.

2 Q. Subsequently?

3 A. Subsequently there were trace amounts of  
4 TCE detected.

5 MR. DAVIS: Excuse me. What well  
6 are we at?

7 MR. LAMBERT: 17.

8 THE WITNESS: As I recall, there  
9 was a trace of TCE detected at Well Nest 17 in  
10 subsequent sampling.

11 BY MR. LAMBERT:

12 Q. Would you look at Figure 3-4? This is  
13 one of three figures that show a seventy year  
14 simulation for the three plumes, is that right?

15 A. Yes.

16 Q. Do you know why the simulation was cut  
17 off at the point where it was cut off?

18 A. Do you mean the furthest extent?

19 Q. Yes, at the down gradient.

20 A. That line? I do not know.

21 Q. Do you know why the 200 ppb  
22 concentration was used to reflect the outer  
23 lateral extent of the plume?

24 A. I am not a ground water modeler. I



1 don't know exactly why 200. My guess is with the  
2 modeling has a certain level of accuracy that to  
3 try and go beyond anything like 200 would be  
4 trying to show more than the models can really  
5 do, based on the limited information available.

6 Q. Is that your understanding or is that a  
7 guess?

8 A. That's my understand -- Based on my  
9 limited knowledge of the modeling, that's my  
10 hypothesis.

11 MR. DAVIS: You're not allowed to  
12 guess.

13 BY MR. LAMBERT:

14 Q. Do you have any understanding based upon  
15 discussions, did you ever ask anybody why it was  
16 done that way?

17 A. No, I didn't.

18 Q. The Figure 3-6, which is the TCE  
19 simulation, uses an outer, uses a concentration  
20 20, not 200. Do you know why that was?

21 A. No, I don't.

22 Q. Would you look at Page 3-13?

23 A. Okay.

24 Q. Bottom paragraph. There's a reference



1       there to 9,000 micrograms per liter.

2           A.     Yes.

3           Q.     What do you understand to be the source  
4       of the 9,000 microgram number, is that a ground  
5       water --

6           A.     Monitoring data.

7           Q.     Monitoring well data?

8           A.     That's right.

9                   I don't know if I should raise this  
10       or not, but I realize on this modeling, to answer  
11       the question of why it goes to 200 in one and 20  
12       in the other -- Again, I'm surmising, but the  
13       contour interval is 200 in one and 20 in the  
14       other and you can't go to zero, so it's the  
15       lowest contour level that you are capable of  
16       plotting having a constant contour interval, in  
17       one case being 200 and in the other case being  
18       20.

19          Q.     What is it that precludes you from  
20       plotting a lower concentration 200 than lack of  
21       data?

22          A.     If you have a constant contour interval,  
23       then the outer contour would be zero and my guess  
24       is that -- I'm not allowed to guess, I'm not



1       supposed to guess, but I would surmise that the  
2       models do not allow you to go all the way to  
3       zero.

4           Q.     Look at Figure 4-1. This is model  
5       generated, is that correct?

6           A.     This is hand drawn.

7           Q.     Hand drawn. And this is a combined  
8       plume depiction, is that right?

9           A.     This is the PCE plume. I'm not sure  
10      what I understand what you mean by combined.

11          Q.     Well, there's one later on that purports  
12      to show just the Gemeinhardt plume. I presume  
13      this reflected both together?

14          A.     This reflects the data collected.

15          Q.     Okay. This has 100 ppb contour. Do you  
16      know why the contour was not a lower ppb number?  
17      This is not a computer --

18          A.     I do not know that, why it was not  
19      drawn.

20          Q.     Okay. I wonder if I can shortcut this.  
21      I have a bunch of questions about why things were  
22      depicted in certain ways in this report and I now  
23      understand that the only way you'd be able to  
24      answer that question is, would be if you happened



1 to have asked somebody that question and  
2 remembered the answer. Rather than go through  
3 all of my questions and get I'm not supposed to  
4 guess as the answer, let me try this. Have you  
5 asked to have explained to you any of the aspects  
6 of this report so that if I asked you by chance  
7 the question that happened to hit upon one of  
8 them, there might be a chance I'd get an answer  
9 that was, that reflected the views of somebody  
10 who was actually involved in its preparation?

11 A. When I was working on, when I took over  
12 the project management of this and tried to  
13 understand what was done and how do I interpret  
14 this information, I did ask people about these  
15 particular drawings and data gathering efforts  
16 and that type of thing. It would be hard to say  
17 whether or not I can remember exact conversations  
18 and the nature of why certain conversations took  
19 place. But I tried to gain an understanding of  
20 what was done with the intent of understanding  
21 how the remediation system was going to work.

22 Q. Well, let me try another question.  
23 Bottom of Page 4-1 it refers to Figure 4-1, which  
24 is the PCE plume and it says that the plume



1 extends from the site to a point approximately  
2 1,400 feet to the north northwest. And it says  
3 at the last sentence that the highest  
4 concentration detected at the north northwest  
5 edge of the plume was 4,400 micrograms per  
6 liter. If 4,400 micrograms per liter were  
7 detected at the north northwest edge of the  
8 plume, what is the justification, what is the  
9 rationale for showing 100 ppb contour as opposed  
10 to a 4,000 contour or some number in between?

11 A. My interpretation of that would be that  
12 Well Nest 7 came up clean as far as PCE was  
13 concerned and therefore, there was a need to have  
14 that concentration contour drop relatively  
15 quickly as we move closer to Well Nest 7.

16 Q. And why isn't it dotted or dashed if  
17 that's what happened?

18 A. That I don't know.

19 Q. If that were the way it was done, it  
20 would be appropriate to show it as dashed,  
21 wouldn't it?

22 A. I would say to be consistent with the  
23 TCE plume, that would probably be a reasonable  
24 way of presenting the data.



1 Q. You mentioned that there had been  
2 discussion about phenomenon that appeared to  
3 cause the plume to take a more northerly course  
4 at a certain point. Where is that in  
5 relationship to the plume that's shown on 4-1?

6 A. It does not show on Figure 4-1.

7 Q. It's not there anywhere on that. In  
8 other words, can you tell me where it is using  
9 Figure 4-1?

10 A. If I used Figure 4-1, the interpretation  
11 of the plume data would be that at Well Nest 10,  
12 can you find that?

13 Q. Yes.

14 A. Okay. There at that point, because of  
15 the concentrations detected in that well nest,  
16 there appeared to be a change in the plume shape.

17 Q. Okay. Can you tell me whether the 1,400  
18 feet for the PCE plume was measured from the  
19 northwest edge of the plume where the  
20 concentration was 4,400 or from the hundred foot  
21 contour that goes beyond that?

22 A. I don't know.

23 Q. On Page 4-5 at the top of the page  
24 there's a point I wanted to ask you about. Let



1 me tell you what my question is and then you can  
2 decide how far back you want to read. Before the  
3 discussion of the TCA plume there is a sentence  
4 that additional well nests would have to be  
5 installed to determine if this condition exists.  
6 I didn't want to ask you about this condition  
7 was. I just wanted to know whether or not  
8 additional well nests were ever installed to  
9 evaluate it?

10 A. Let me read -- Okay. The answer is no  
11 additional wells were installed.

12 Q. Do you know whether the data from  
13 Monitoring Wells 17 or 18 has been utilized to  
14 try to provide an explanation for the extended  
15 plume center that's referred to here?

16 A. Monitor Wells 17 and 18 are well beyond  
17 this plume. As I recall there was no PCE  
18 detected in either of those wells, so it did not  
19 become an issue.

20 Q. So the uncertainty that's referenced at  
21 the top of Page 4.4-5 still exists as far as ENSR  
22 is concerned?

23 A. Yes.

24 Q. Figure 4-3, please. My question is



1       whether this is one of the figures that you felt  
2       had to be revised after taking into account the  
3       data from Wells 17 and 18?

4           A.     Yes, it is.

5           Q.     Figure 4-5, do you have that?

6           A.     4-5.

7           Q.     Yeah, it's on Page 4-8.

8           A.     Okay.

9           Q.     Nests 17 and 18 show up on this  
10       particular figure, do they not?

11          A.     Yes, they do.

12          Q.     Did you inquire how it could be that  
13       they were taken into account on that figure, but  
14       not taken into account on Figure 4-3?

15                   MR. DAVIS: I object. It's not  
16       apparent that they were taken into account,  
17       although they do appear there. Go ahead.

18          BY MR. LAMBERT:

19          Q.     Go ahead.

20          A.     Would you just ask the question again?

21          Q.     Yeah. When you were inquiring about how  
22       these figures came to be done the way they were  
23       done and someone told you that the data from 17  
24       and 18 was not taken into account in drawing some



1 of these figures, did you point out to them that  
2 here's one figure that does reference the two  
3 wells?

4 A. I don't recall asking that question.

5 Q. Figure 4-11, please? What is Figure  
6 4-11?

7 A. This is a model simulation of TCE plume  
8 assuming Gemeinhardt is the only source.

9 Q. Do you see Nest 17 there?

10 A. Yes, I do.

11 Q. What is that little elliptical circle  
12 around the marker for the nest mean?

13 A. That marker, according to the  
14 explanation, indicates that's in the simul --  
15 I'm sorry. It's a well where nothing was  
16 detected.

17 Q. So does that tell you that for this  
18 particular simulation, at least, the person who  
19 did it took Well 17 data into account?

20 A. This indicates that the person who did  
21 this, who prepared the drawing was aware of the  
22 Well 17 data.

23 Q. Did you notice this when you were asking  
24 people questions about how they drew the plumes



1 the way they did?

2 A. I don't recall noticing this.

3 Q. Figure 4-12, please. Can you explain  
4 the methodology used to prepare this figure?

5 A. My understanding what was done here is  
6 the results of the evaluation of various sources  
7 were attempted to be put on a single drawing, but  
8 I do not know the details of the process by which  
9 the person who did this prepared the drawing.

10 Q. You're not familiar with the way the  
11 modeling was done, I take it, in connection with  
12 this report?

13 A. Not, no, not the specifics of the  
14 modeling.

15 Q. Let me ask you a couple questions about  
16 another document.

17 MR. LAMBERT: This is the December  
18 1988 ENSR report entitled Remedial Action  
19 Evaluation and Recommendation. Could this be  
20 marked with the next number, please?

21 \*0\* (Urban Exhibit No. 6,  
22 marked for identification.)

23 BY MR. LAMBERT:

24 Q. Would you look at Figure 1-3 on Page



1 1-9? Does Figure 1-3 accurately show where  
2 alternative water supplies were installed in the  
3 down gradient of the Gemeinhardt facility?

4 A. This is my understanding what was  
5 installed. I do not know the details of what was  
6 finally installed in the area.

7 Q. Figure 2-2. Do you know who prepared  
8 this figure individually?

9 A. No, I don't. This was before I was  
10 involved with the project.

11 MR. LAMBERT: Can we take a short  
12 break? We're getting to the end.

13 MR. DAVIS: Sure.

14 (Brief recess)

15 MR. LAMBERT: Just a couple more  
16 questions. This is a letter apparently from Mr.  
17 Urban to Joseph Horowitz dated December 24, 1991  
18 to which is attached a November 4, 1991 internal  
19 ENSR memo. Mark it with the next number,  
20 please.

21 \*0\* (Urban Exhibit No. 7,  
22 marked for identification.)

23 BY MR. LAMBERT:

24 Q. Can you identify the cover letter and



1 the attachment, please?

2 A. Yes. Apparent -- Actually, this letter  
3 was an attachment as a whole.

4 Q. I'm sorry, I couldn't hear you.

5 A. This letter was an attachment as a whole  
6 to, I believe it was to an EPA progress report.  
7 I should say a progress report to the EPA,  
8 monthly progress report.

9 Q. And that progress report attached a copy  
10 of your letter to Mr. Horowitz which attached a  
11 copy of the internal memo?

12 A. That's correct.

13 Q. Is this the first written statement of  
14 the rationale for revising the plume maps?

15 A. I believe that is the case.

16 Q. Is there any other document that  
17 contains either this rationale or a similar  
18 rationale or a different rationale, any  
19 rationale?

20 A. Not that I recall.

21 Q. Am I right in understanding that the  
22 whole reason for revising the plume maps was the  
23 data from Well Nest 17?

24 A. The plume maps were revised to reflect



1 the data from Well Nest 17. If that's saying the  
2 same thing, yes.

3 Q. Has Well 17 been sampled since the time  
4 that the data was collected that is referred to  
5 on the first page of the November 4 memo? It  
6 says it was sampled in September of 1991.

7 A. I'm sorry, can you repeat that?

8 Q. Has it been sampled since then?

9 A. Since September of 1991?

10 Q. Yeah.

11 A. Yes, it was sampled approximately a year  
12 ago when we did the complete round of sampling.

13 Q. Is that the only time it's been sampled  
14 since then?

15 MR. DAVIS: Let me interject that  
16 they have been out sampling during the last  
17 week. It may be included in that, as well.

18 BY MR. LAMBERT:

19 Q. Apart from that, has it been sampled any  
20 other time that you know of?

21 A. I don't believe so.

22 MR. LAMBERT: That's all I have.

23 MR. MASON: No questions.

24 MR. DAVIS: No questions.



(Whereupon, at 4:10 o'clock p.m.,  
the deposition was concluded.)

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24



## C E R T I F I C A T E

I, DAVID B. URBAN, do hereby certify that I have read the foregoing transcript of my testimony given on September 27, 1993, and I further certify that said transcript is a true and accurate record of said testimony (with the exception of the following corrections listed below):

Page	Line	Correction
------	------	------------

Dated at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 1993.

DEPONENT

Read and signed before me this \_\_\_\_\_ day of \_\_\_\_\_, 1993.

Notary Public  
My commission expires: \_\_\_\_\_



1 COMMONWEALTH OF MASSACHUSETTS

2 COUNTY OF SUFFOLK

3  
4  
5 I, CYNTHIA F. STUTZ, Shorthand Reporter  
6 and Notary Public duly commissioned and qualified  
7 in and for the Commonwealth of Massachusetts, do  
8 hereby certify that there came before me on the  
9 27th day of September, 1993, at 1:08 o'clock  
10 p.m., the person hereinbefore named, who was by  
11 me duly sworn to testify to the truth and nothing  
12 but the truth of his knowledge touching and  
13 concerning the matters in controversy in this  
14 case; that he was thereupon examined upon his  
15 oath, and his examination reduced to typewriting  
16 under my direction; and that the deposition is a  
17 true record of the testimony given by the witness  
18 to the best of my ability.

19  
20 I further certify that I am neither  
21 attorney nor counsel for, nor related to or  
22 employed by any of the parties to the action in  
23 which this deposition is taken; and further that  
24 I am not a relative or employee of any attorney  
or counsel employed by the parties hereto or  
financially interested in the action.

IN WITNESS WHEREOF, I have hereunto set  
my hand this 12th day of October, 1993.

22 CYNTHIA F. STUTZ, Notary Public  
23 My commission expires:  
24 September 4, 1998

